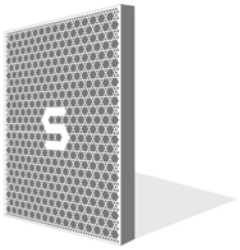
INSTALLATION / OWNER'S MANUAL

Schwank
infra-red gas heaters
ISO 9001:2000 REGISTERED



SCHWANK GAS FIRED INFRA RED HEATERS LUMINOUS SERIES

ECOSCHWANK - MILLIVOLT

FOR YOUR SAFETY:
Do not store or use gasoline or other flammable vapours and liquids in the vicinity of this or any other appliance.
If you smell Gas:
>Extinguish any open flames
>Don't touch electrical switches

FIELD CONVERTIBILITY:

"The conversion shall be carried out in accordance with the requirements of the authorities having jurisdiction and in accordance with the requirements of the B149.1-00 (latest edition) INSTALLATION CODE" in Canada, and the ANSI Z223.1 (latest edition) in the U.S.A.

CERTIFIED

FOR YOUR SAFETY
If you smell gas:
1) Open windows
2) Don't touch electrical switches
3) Extinguish any open flame
Immediately call your gas supplier

DESIGN CERTIFIED

SP-MECM-BX-05A
ecoSchwank - Millivolt Manual
RD: MAY, 2004
RL: 5
KH

NOTICE:

Schwank Inc., reserves the right to make changes to equipment and specifications without obligation or notification. All codes are current at the time of printing.

This publication, or parts thereof, may not be re-produced in any form, without prior written consent from Schwank Inc. Unauthorized use or distribution of this publication is strictly prohibited.

Schwank Inc.
5285 Bradco Boulevard,
Mississauga, Ontario,
phone: (905) 712-4766
fax: (905) 712-8336

Schwank Inc.
PO Box 988
Waynesboro,
Georgia,USA 30830
Phone: (706) 554-6191
Technical Support: 1-877-446-3727
Fax: (706) 554 9390

e-mail: info@schwankheaters.com

http://www.schwankheaters.com

Schwank
infra-red gas heaters
ISO 9001:2000 REGISTERED

ECOSCHWANK
- MILLIVOLT
LUMINOUS SERIES
INFRA-RED GAS TUBE HEATERS

TABLE OF CONTENTS

TOPIC	PAGE NUMBER
1. GENERAL	1
2. INSTALLATION REQUIREMENTS	1
2.1 INSTALLATION IN AIRCRAFT HANGARS	1
2.2 INSTALLATION IN COMMERCIAL GARAGES	2
2.3 INSTALLATIONS OTHER THAN SPACE HEATING	2
2.4 MOUNTING CLEARANCES	2
2.5 HEATER MOUNTING	2
2.6 VENTILATION REQUIREMENTS	3
2.7 GAS SUPPLY LINE INSTALLATION	3
2.8 GAS PRESSURE	3
3. INSTALLATION PROCEDURES	4
4. AIR BORNE PARTICLES	5
5. SERVICE GUIDE	5
6. LIGHTING INSTRUCTIONS	6
7. THERMOSTAT CONTROL	6

TOPIC	PAGE NUMBER
8. TROUBLESHOOTING GUIDE	7
8.1 MAINTENANCE	7
9. DIAGRAMS AND SPECIFICATIONS	8
9.1 DIMENSION DIAGRAM	8
9.2 SUSPENSION HARDWARE DIAGRAM	8
9.3 MOUNTING DIAGRAM	9
9.4 HORIZONTAL CLEARANCE TO COMBUSTIBLES	9
9.5 UP TO 45º ANGLE CLEARANCE TO COMBUSTIBLES	9
9.6 SUGGESTED MOUNTING DISTANCE FOR COMFORT	10
10. GAS VALVE WIRING	11
11. HIGH ALTITUDE INSTALLATIONS	12
12. SPARK IGNITION CIRCUIT	13
13. START UP SHEET	14
14. LIMITED WARRANTY	16

SP-MECM-BX-05A
ecoSchwank - Millivolt Manual
RD: MAY, 2004
RL: 5
KH

SCHWANK GAS FIRED INFRA-RED HEATERS
ECOSCHWANK
LUMINOUS SERIES
INSTALLATION INSTRUCTIONS

1. GENERAL

The **Schwank** gas fired infra-red luminous heaters are suitable to be installed for heating of non-residential indoor or outdoor spaces. These installation instructions are intended for the Eco-Schwank heaters. All installations must conform to the following installation requirements. All local, provincial and national code requirements including the current latest edition B149.1 INSTALLATION CODE" in Canada, and ANSI Z223.1 in the U.S.A. for gas burning appliances and equipment. The latest edition Electrical Code PART 1 CSA C22.1 in Canada and ANSI/NFPA N0 70 in the U.S.A. must also be observed. Due to ever changing standards and requirements, revision to our equipment and installation procedures may be necessary. In case of discrepancies, the latest installation manual will take priority.

The **ecoSchwank** heater may be installed for heating of non-residential indoor spaces. It is beyond the scope of these instructions to embrace all conditions that will be encountered. All system piping must be supported in accordance with acceptable practice, local codes, and applicable standards.

2. INSTALLATION REQUIREMENTS

2.1 INSTALLATION IN AIRCRAFT HANGARS

The **Schwank Luminous** Heaters are suitable for use in aircraft hangars when installed in accordance with the following:

A. A minimum clearance of 10 ft above either the highest fuel storage compartment or the highest engine enclosure of the highest aircraft which may occupy the hangar. The clearance to the bottom of the heater shall be measured from the upper surface of either the fuel storage compartment or the engine enclosure, whichever is higher from the floor.

B. A minimum clearance of 8 ft must be maintained from the bottom of the heater in other sections of the aircraft hangars, such as offices and shops, which communicate with areas for servicing or storage. Refer to sections 9.3 to 9.5 for proper mounting clearances to combustibles.

C. Heaters must be located so as to be protected from damage by aircraft and other objects, such as cranes and movable scaffolding.

D. Heaters must be located so as to be accessible for servicing and adjustment.

2.2 INSTALLATION IN COMMERCIAL GARAGES

The **Schwank** Luminous Heaters are suitable for use in commercial garages when installed in accordance with ANSI/NFPA No. 88B 1985 (latest edition), which states clearances to combustible construction or material in storage, from heater and vent, must conform to standard NFPA No. 54 (ANSI Z223.1 latest edition), in the U.S.A. and the CSA B149.1 in Canada. "Overhead heaters shall be installed at least (8) feet above the floor". In addition, they shall be located high enough to maintain the minimum distance to combustibles, as shown on the heater rating plate, between the heater and any vehicles parked below the heater

2.3 INSTALLATIONS OTHER THAN SPACE HEATING

Use for process applications will void the C.S.A. certification and require governing authority field certification at the installers / owners responsibility and expense.

2.4 MOUNTING CLEARANCES

The **Schwank** Luminous Heater must be mounted with minimum clearances as shown in sections 8.3 to 8.5. It should also be located with respect to building construction and equipment so as to provide sufficient clearance and accessibility for servicing and cleaning of burners and ignition control.

WARNING: **The Schwank Luminous Heaters cannot be installed inside degreasing plants, nor can they be in an area where chlorine, fluorine or bromine are present.**

2.5 HEATER MOUNTING

The **Schwank** Luminous Heaters are approved for both horizontal and angle mounting. When angle mounting, the short axis may be rotated in either direction to a maximum of 30^0 degrees with the venturi always in the upper position. Improper angle mounting can result in damage to the heater or unsafe operation.

IMPORTANT: **For either horizontal or angle mounting, the long axis of the heater must be level. Use only non-combustible mounting hardware.**

2.6 VENTILATION REQUIREMENTS

In **Canada** it is required by law that an unvented heater be electrically interlocked to an independent exhaust fan by means of an Air Proving Switch. The exhaust fan must be sized to create 3 cfm for every 1000 Btu/hr or fraction thereof, of total input of installed equipment. Consult CSA. B149.1 latest edition for requirements.

In the **USA** when a heater is installed unvented the system requires the exhausting of at least 4 cfm per 1000 Bth/hr on NG, and 4.5 cfm per 1000 Btu/hr for LP. By natural or mechanical means, or electrically interlocked to an independant exhaust fan, for the total input of all heaters installed. Exhaust openings for removing flue products shall be above the level of the heaters.. Consult your local codes and ANSI Z223.1 latest edition.

2.7 GAS SUPPLY LINE INSTALLATION

A. All piping must be installed according to local codes.
B. It is recommended to install an approved flexible connector between the heater and gas piping available as option from Schwank.
C. A drip-pocket at the inlet connection must be provided.
D. On propane-fired units, a main line filter is recommended.
E. Piping joint compounds must be resistant to the action of liquefied petroleum gases.
F. All piping joints should be tested for leaks with a soap and water solution.

CAUTION: Do not install any gas piping in heat zones. Do not subject heater controls to leak test pressures when checking the main supply piping.

2.8 GAS PRESSURE

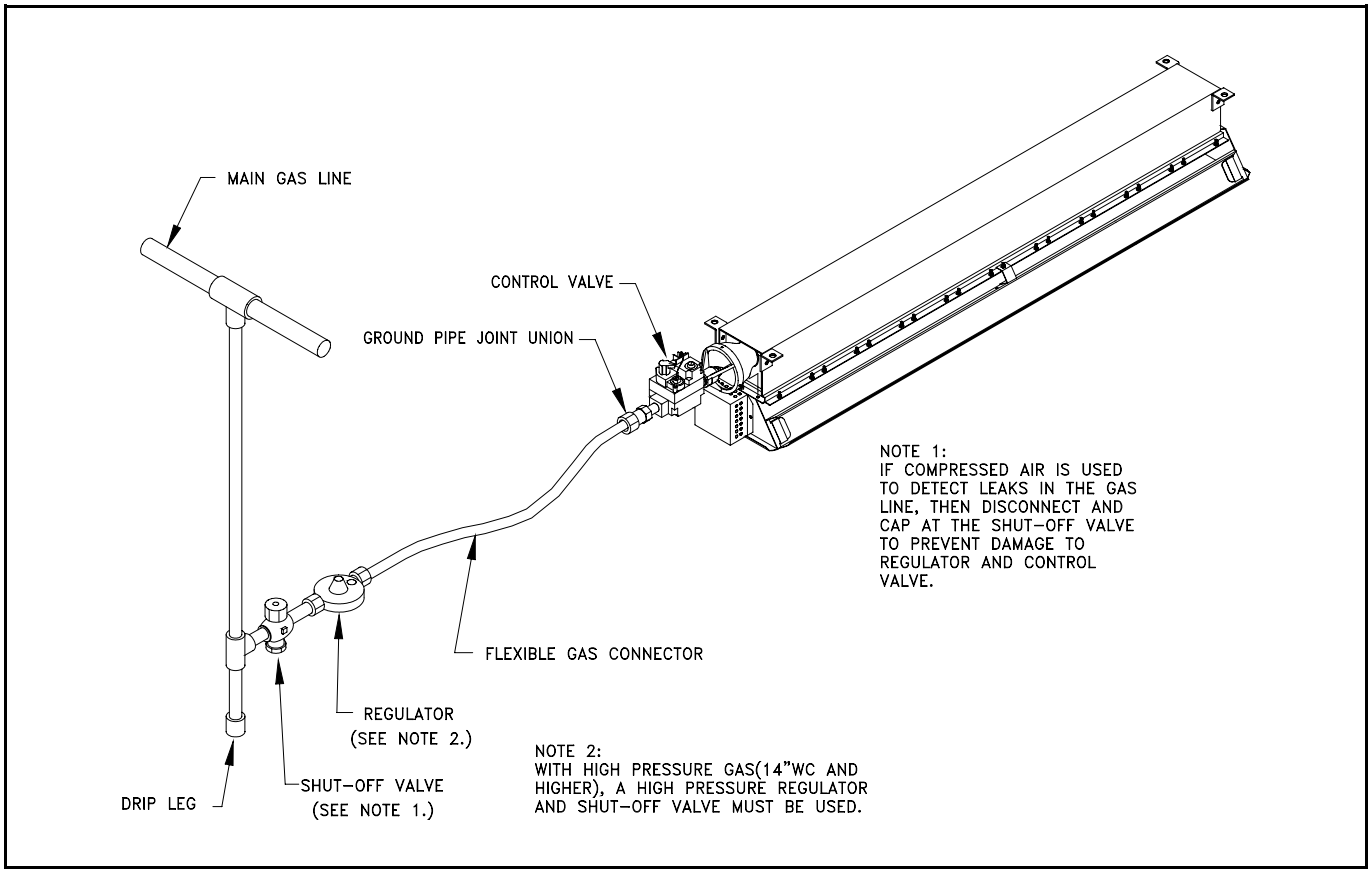
The maximum supply pressure must be limited to 14" W.C. (0.51 psi). If the line pressure is above 14" W.C., then a separate pressure reducing regulator must be used. The minimum pressure at the inlet to the heater regulator must be equal to or greater than 6.0" W.C. for natural gas and 11.0" W.C. for propane gas.
A sealed regulator is supplied with the heater which maintains the proper manifold pressure when the main burner is operating under the following pressure:

	LINE PRESSURE IWC		MANIFOLD PRESSURE IWC AT TAP IN GAS VALVE
	MINIMUM	MAXIMUM	
NATURAL GAS	6.0	14.0	5.0
PROPANE GAS	12.0	14.0	11.0

Natural gas models are orificed for 1000 BTU/CU FT., and propane gas models are orificed for 2500 BTU/CU FT.

3. INSTALLATION PROCEDURES

A. Properly install gas line as outlined in section 2.7, page 3.
B. Properly connect the ignition control assembly to the heater.
C. Mount heaters by using non-combustible mounting hardware as illustrated in Diagrams 2 on page 8. Observe the minimum clearances as outlined in sections 9.3 to 9.6.
D. Connect heater to the main gas line. It is recommended to use a 1/2" flexible connector to absorb gas line expansion and any building vibration (available as option from Schwank Inc.)
E. Mount thermostat at desired location, away from direct infra-red rays of heater and not on cold wall without sufficient insulation backing. Install exhaust fan, air switch and transformer, as per section 2.6, page 3.
F. Check gas line for leakage by using soap test or gas meter test. Ensure gas pressure meets the requirements outlined in section 2.8, page 3.


MAIN GAS LINE
CONTROL VALVE
GROUND PIPE JOINT UNION
NOTE 1:
IF COMPRESSED AIR IS USED TO DETECT LEAKS IN THE GAS LINE, THEN DISCONNECT AND CAP AT THE SHUT–OFF VALVE TO PREVENT DAMAGE TO REGULATOR AND CONTROL VALVE.
FLEXIBLE GAS CONNECTOR
REGULATOR
(SEE NOTE 2.)
NOTE 2:
WITH HIGH PRESSURE GAS(14"WC AND HIGHER), A HIGH PRESSURE REGULATOR AND SHUT–OFF VALVE MUST BE USED.
DRIP LEG
SHUT–OFF VALVE
(SEE NOTE 1.)

WARNING: **When testing the main gas line pressure, ensure the gas shut-off valve is "OFF", otherwise damage to the combination gas valve will result.**

4. AIR BORNE PARTICLES

Under certain conditions, heater may discolour due to ambient air borne particle deposits on the outside surface. These deposits in no way affect the operation of the heater nor the manufacturer's warranties.

WARNING: If heater back-fires during operation, then it must be turned off immediately.

Indication of back-firing:

A. Loud ignition noise, then followed by distinct hissing sound.
B. Little or no visible burning on the ceramic tile.
C. Combustion is taking place inside the burner body.

Cause & remedy of back-firing:

A. Improper gas pressure entering the venturi tube = check pressure.
B. Breakage of a ceramic tile and or gasketing = replace damaged part.
C. Faulty sealing of the ceramic tile to the burner body, caused by breakdown of gasketing material = contact your Schwank distributor.

5. SERVICING GUIDE

Servicing of heater is essential for continued efficient operation. Servicing should be carried out annually by qualified service personnel.

A. Clean the ceramic tile with compressed air. Avoid directing air stream at gasketing material between tile and heater body. The air pressure must be lower then 20 psi.

B. Clean the venturi tube with compressed air.

C. Clean the reflectors.

6. LIGHTING INSTRUCTIONS

1. Turn heater thermostat to lowest setting. Turn gas control knob to “OFF” position for five min utes before lighting.
2. Open Pilot access door to locate pilot and turn gas control knob to “PILOT” position.
3. Depress gas control knob and light pilot. Con tinue to hold knob for one minute after pilot is lit.
4. Turn gas valve to “ON” position.
5. Turn Heater thermostat to desired temperature.

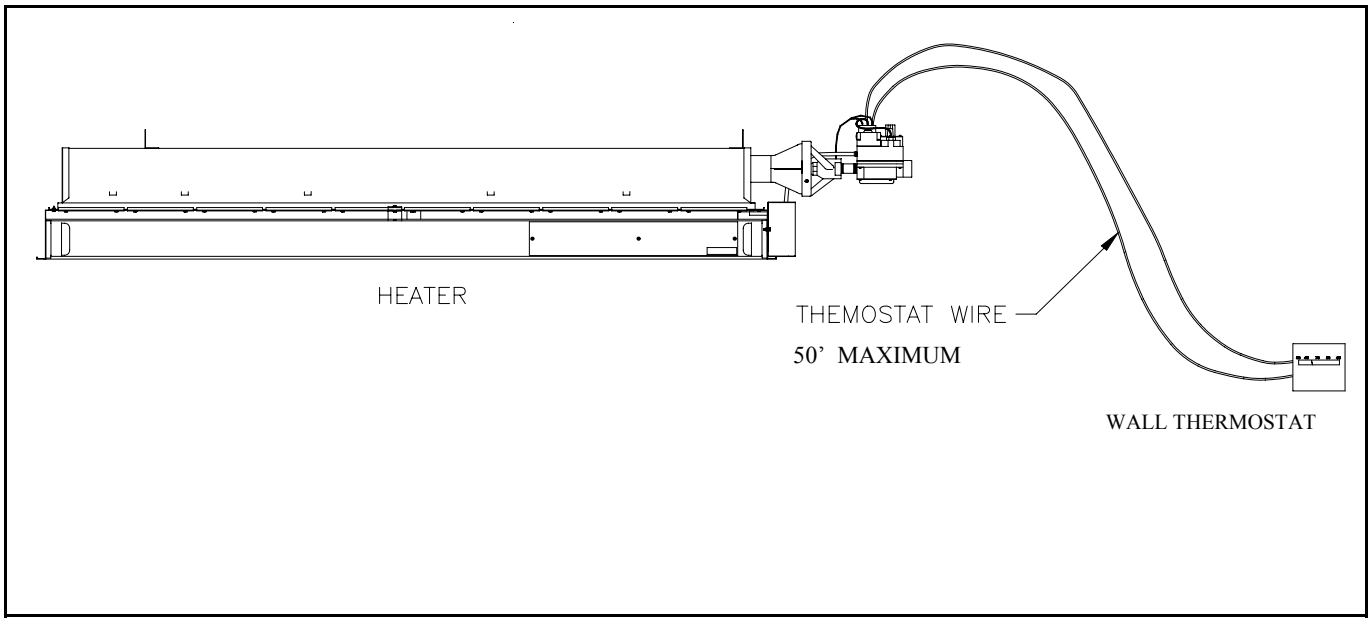
B. If heater does not light, shut down heater.

C. To shut down heater:

1. Turn heater thermostat to lowest setting.
2. Depress gas control knob and turn to “OFF” position.

Manufactured under the following U.S. Patents:
3,825.403 Patented in Canada:
other Patents Pending.

7. THERMOSTAT CONTROL



8. TROUBLE SHOOTING GUIDE

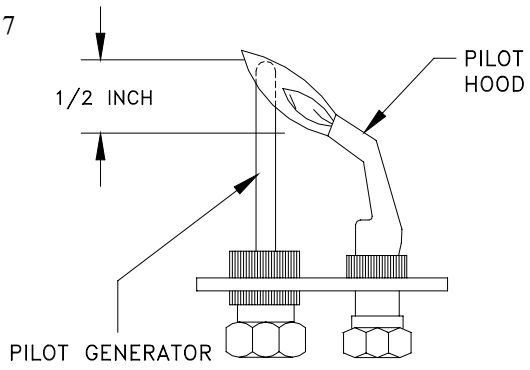
SYMPTOMS	POSSIBLE CAUSES OR CORRECTION
1. Pilot will not light	a. Make sure the gas supply is turned on. b. Air in line. Continue to relight until air is released. c. Check for a blocked pilot orifice.
2. Pilot outage	a. Improper pilot flame adjustment. Refer to Figure 7. b. Check pilot generator contacts and tighten if necessary. c. Defective pilot generator—replace. d. Defective valve—replace
3. Pilot flame will not stay lit when valve knob is released	a. Improper pilot flame adjustment. Refer to figure 7. b. Remove pilot orifice—check and clean—reinstall. c. Defective thermostat—replace. d. Defective valve—replace.
4. Burner goes out.	a. Thermostat satisfied—normal operation. b. Defective valve—replace.
5. Main burner and pilot goes out.	a. Improper venting or blocked flue. Correct venting problem and relight. b. Strong Wind conditions.—restart heater. c. Make sure the gas supply is turned on.
6. Burner backflashes or makes noise.	a. Check burner and orifice for damage. Replace if necessary. b. Check for cracked tile. Replace if necessary.
7. Yellow main burner flame.	a. Check and clean burner and orifice. b. Check line and manifold gas pressure.
8. Yellow pilot flame.	a. Small yellow tip—normal operation. b. Remove pilot orifice – check and clean—replace.
9. Poor thermostatic control.	a. Check for proper setting. b. Check wall thermostat section or gas valve assembly. c. Replace thermostat section or gas valve assembly. d. Check wall thermostat location.
10. Main burner will not light	a. Check thermostat setting. b. Check to see if valve is in the ON position.

8.1 MAINTENANCE

The efficiency of the heater can be impaired if it gets dirty. If the heaters are installed in areas where considerable dust is present in the air, periodic burner cleaning may be necessary. Dust may be entrained in the primary air supply and deposited on the back side of the ceramic. This can be very easily removed by dusting the ceramic face and the air inlet with a blast of low pressure air, a maximum of 20 psi.

Occasionally pilots or the main burner refuse to function properly after a summer shutdown. For the pilot, this problem can be corrected by removing the pilot burner and cleaning out the gas passageways. The main burner passageways can be cleaned out by using a flexible brush comparable to the type used to clean glass bottles. (In several instances, small cocoons or spider webs have been found present in these areas.) Preventative maintenance is the best policy. Heaters should be cleaned once a heating season.

FIG. 7



SP-MECM-BX-05A
ecoSchwank - Millivolt Manual
RD: MAY, 2004
RL: 5
KH

9. DIAGRAMS AND SPECIFICATIONS:

9.1 DIMENSION DIAGRAM FOR THE LUMINOUS HEATERS

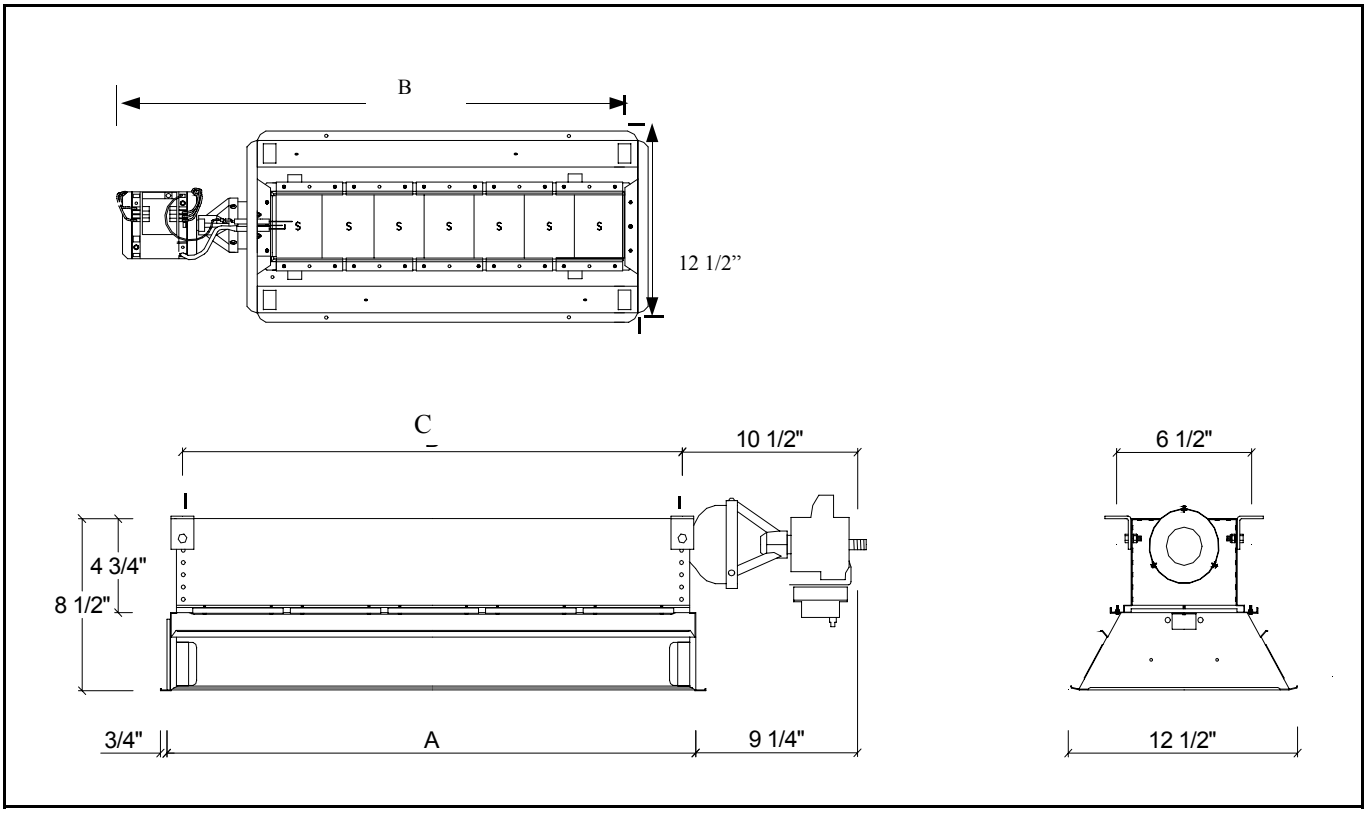
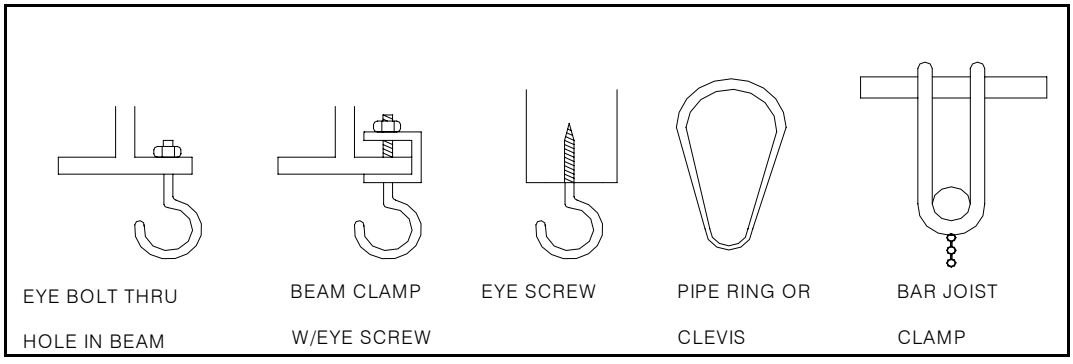


TABLE 1: DIMENSIONS :

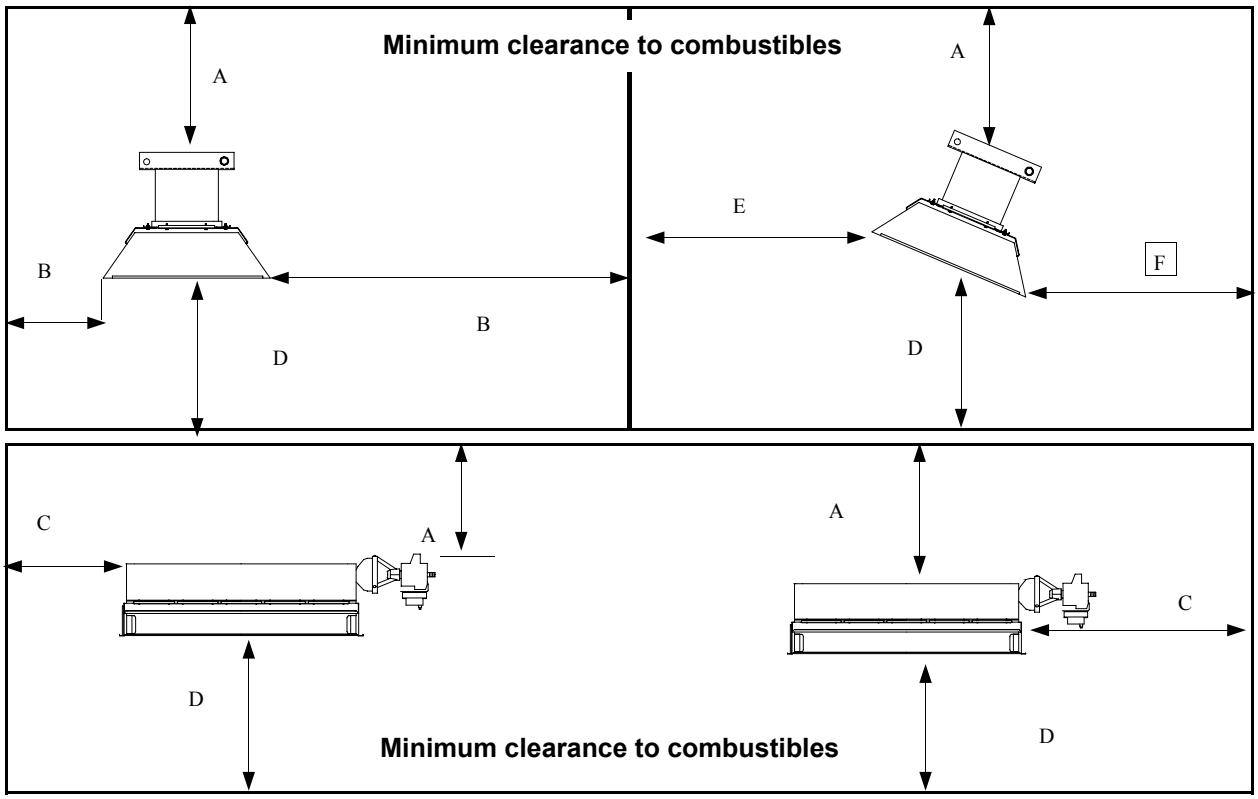
MODEL N0.	A	B	C	RATING BTU/ HR	WEIGHT LBS.
ecoSchwank 6	13 1/2”	24”	11 1/4”	21,000	22
ecoSchwank 10	20 1/2"	30 1/4”	15 1/2”	37,000	26
ecoSchwank 13	28 1/2"	38 1/2”	18 1/2”	50,000	31
ecoSchwank 18	38 3/4"	48 1/2”	29 1/2”	75,000	38
ecoSchwank 26	53 1/4"	63 3/4”	44”	100,000	45

9.2 SUSPENSION HARDWARE (supplied by others)



SP-MECM-BX-05A
ecoSchwank - Millivolt Manual
RD: MAY, 2004
RL: 5
KH

9.3 MOUNTING DIAGRAM FOR LUMINOUS HEATERS



9.4 HORIZONTAL CLEARANCES TO COMBUSTIBLES CHART :

HEATER MODEL NO	TOP < A>	SIDE < B>	END < C >	BOTTOM < D >
ecoSchwank 6 N/L	24”	27”	24”	60”
ecoSchwank 10 N/L	24”	27”	24”	60”
ecoSchwank 13 N/L	24”	27”	24”	78”
ecoSchwank 18 N/L	30”	33”	30”	84”
ecoSchwank 26 N/L	36”	33”	30”	84”

9.5 ANGLE CLEARANCES TO COMBUSTIBLES CHART :

HEATER MODEL NO	TOP < A>	FRONT < E>	END < C >	BOTTOM < D >	REAR < F >
ecoSchwank 6 N/L	24”	60”	24”	60”	24”
ecoSchwank 10 N/L	24”	60”	24”	60”	24”
ecoSchwank 13 N/L	24”	78”	24”	78”	24”
ecoSchwank 18 N/L	30”	84”	30”	84”	30”
ecoSchwank 26 N/L	36”	84”	30”	84”	30”

9.6 SUGGESTED MOUNTING DISTANCE FOR COMFORT**

Since most installations will differ in many details, these instructions are general. Sound judgment must be exercised and careful supervision is essential to assure the installation will be made in the best manner possible for trouble-free operation and at minimal cost. All systems must be done in accordance with acceptable practices, local codes, and applicable standards.

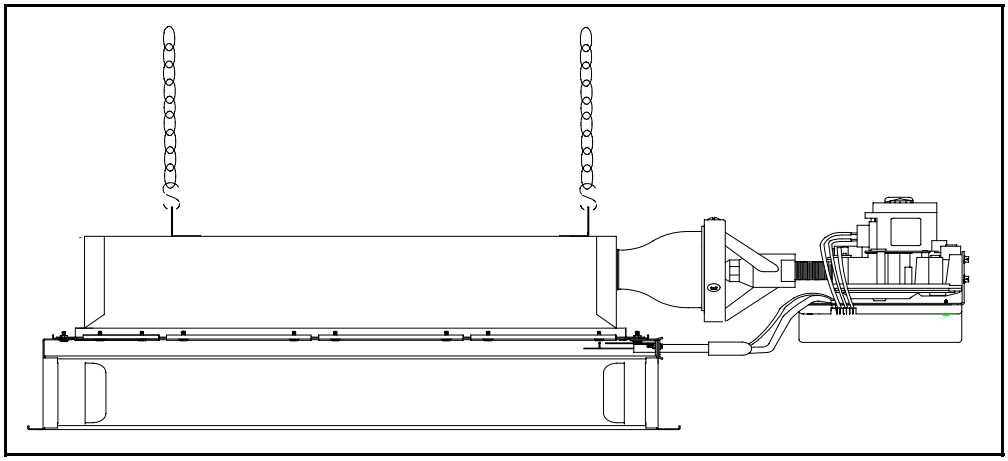
This heater is suitable for reflector mounting angles up to 30^0 degrees along the short axis

Improper angle mounting can result in overheating of controls and combustible materials.

IMPORTANT: For either horizontal or angle mounting, the long axis of the heater must be level. Use only non-combustible mounting hardware.

NOTE: It is the responsibility of the installer to insure that the chosen suspension system will support at least 200 lbs.

*Reflector with venturi must be in upper position



MOUNTING HEIGHTS:

HORIZONTAL suggested mounting distance for comfort.*

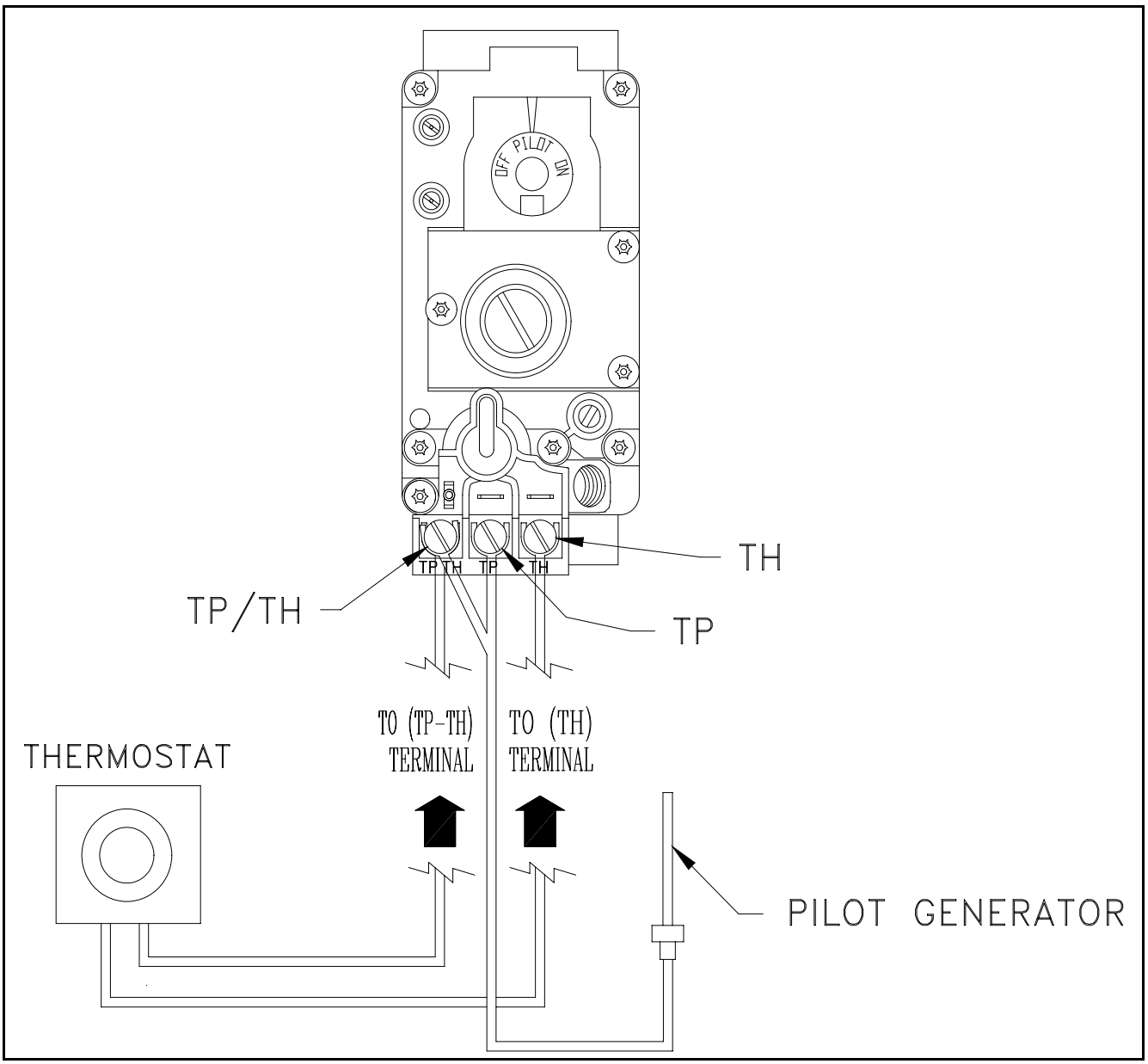
ecoSchwank	6	10	13	18	26
Distance to floor	12’	16’	20’	24’	28’
Maximum heater spacing	16’	22’	28’	34’	39’
Maximum distance between heater rows	25’	30’	40’	50’	70’

ANGLE suggested mounting distance for comfort.*

ecoSchwank	6	10	13	18	26
Distance to floor	12’	13’	17’	20’	22’
Maximum heater spacing	16’	22’	28’	34’	39’
Maximum distance between heater rows	25’	30’	40’	50’	70’

** These mounting distances are suggested and are subject to on sight conditions. If in doubt, please contact your Schwank distributor.

10. GAS VALVE WIRING



11. HIGH ALTITUDE INSTALLATIONS

In Canada all of our Luminous heaters are approved for altitudes zero to 2000ft above sea level, or 2000ft to 4500ft above sea level and must be ordered as such, for either High or Low altitude.

In the USA if a heater is to be installed at altitudes above 2000 ft, the input must be reduced by 4% per 1000 ft and the orifice must be changed. (Contact your local distributor or Schwank Inc. for further technical information).

12. SPARK IGNITION CIRCUIT

The step-up transformer in the ignition control provides spark ignition at 30,000 volts (open circuit). To check the spark ignition circuit, proceed as follows.

1 Shut off gas supply to the gas control
2 Disconnect the ignition cable at the ignition control stud terminal to isolate the circuit from the spark igniter or igniter/sensor
3 Prepare a short jumper lead, using heavily insulated wire such as ignition cable

CAUTION

In the next step, DO NOT allow fingers to touch either the stripped end of the jumper or the stud terminal. This is a very high voltage circuit and electrical shock can result.

1 Perform this test immediately upon energizing the system before the ignition control goes into safety lockout and interrupts the spark circuit. Touch one end of the jumper firmly to the ignition control GND terminal. (DO NOT remove the existing ground lead.) Slowly move the other end of the jumper wire toward the stud terminal on the ignition control to establish a spark.
2 Pull the wire away from the stud and note the length of gap at which spark discontinues.
3 A spark length of 1/8 in. (3mm) or more indicates satisfactory voltage output. If no arc can be established, or the maximum spark is less than 1/8 in. (3mm), and power to the ignition control input terminals was proved, replace the ignition control.

13. START UP SHEET

COMMISSIONING REPORT
AS PER I&O MANUAL AND LOCAL CODES

CONTRACTOR NAME: .....DATE.....

ADDRESS:.....

.....

CITY:.....

PHONE:.....

CELL: .....

JOB SITE.....CITY.....

HEATER MODEL NUMBER:.....

HEATER SERIAL NUMBER: .....

THIS EQUIPMENT HAS BEEN FACTORY FIRED AND TESTED BEFORE DELIVERY, NEVERTHELESS IT IS NOT A PLUG IN APPLIANCE..IT DOES REQUIRE COMMISSIONING AND FIELD ADJUSTMENTS

TO ENSURE THAT SITE CONDITIONS ARE COMPATIBLE WITH THIS HEATER, AND TO ALLEVIATE NUISANCE CALL BACKS FOR THE CONTRACTOR, THE FOLLOWING START-UP NEEDS TO BE COMPLETED BY THE LICENSED GAS INSTALLER.

A CONTRACTOR IS CALLING FOR TECHNICAL SUPPORT, MUST PROVIDE THE FOLLOWING INFORMATION FROM HIS COMPLETED COMMISSIONING REPORT ON NEXT PAGE

FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 USA - 706-554-9390

TO BE COMPLETED BY THE LICENSED INSTALLER:
HIGH INTENSITY COMMISSIONING REPORT

TYPE OF GAS:	NG	☐	☐
DOES BUILDING HAVE A NEGATIVE CONDITION:	YES	☐	☐
WILL HEATER BE EXPOSED TO WELDING FUMES:	YES	☐	☐
IS HEATER EXPOSED TO CHEMICAL OR CORROSIVE ATMOSPHERE:	YES	☐	☐
IS AN OPEN FLAME COMPATIBLE WITH THE INSTALLED LOCATION:	YES	☐	☐
MINIMUM CLEARANCES CONFORM AS PER I&O MANUAL:	YES	☐	☐
IF THIS IS A HIGH ALTITUDE AREA WHAT IS THE ALTITUDE ABOVE SEA LEVEL		☐	Feet
IS HEATER SHORT AXIS HORIZONTAL WITH THE VENTURI ON TOP:	YES	☐	☐
IS HEATER INTERLOCKED WITH AN EXHAUST FAN SYSTEM:	YES	☐	☐
IS FAN SYSTEM 3 CFM PER 1000Btu/hr OF THE TOTAL HEAT LOAD:	YES	☐	☐
WILL HEATER BE AFFECTED BY OVERHEAD CRANES / VIBRATION:	YES	☐	☐
IS GAS SUPPLY LINE ADEQUATELY SIZED FOR SYSTEM VOLUME:	YES	☐	☐
HAVE GAS LINES AND BRANCHES BEEN PURGED OF AIR:	YES	☐	☐
THIS HEATER WAS FIELD TEST FIRED WITHOUT ANY MALFUNCTION:	YES	☐	☐
INLET GAS SUPPLY PRESSURE WITH HEATER OPERATING:		☐	WC"
GAS VALVE OUTLET (Manifold) PRESSURE WITH HEATER OPERATING:		☐	WC"
HAS THE WIRING POLARITY BEEN MAINTAINED THROUGHOUT:	YES	☐	☐
WHAT IS THE VOLTAGE READING AT THE IGNITION MODULE:		☐	VOLTS
WHAT IS THE FLAME SIGNAL STRENGTH IN uA FROM SENSOR:		☐	uA (microamps)
IS THE HEATER CONTROLLED BY A THERMOSTAT:	YES	☐	☐
IS THE THERMOSTAT STRATEGICALY LOCATED:	YES	☐	☐
TOTAL HEATERS SUPPLIED FROM ONE SINGLE TRANSFORMER:		☐	TOTAL
WHAT IS THE RATING OF THE TRANSFORMER IN VA:		☐	V.A.
WHAT IS THE TOTAL LENGTH OF THE LOW VOLTAGE WIRING:		☐	FEET
WHAT IS THE GAUGE OF THE LOW VOLTAGE WIRING:		☐	GAUGE

THIS HEATER MUST HAVE GOOD ELECTRICAL GROUNDING:

*** FAX COMPLETED FORM TO TECHNICAL SERVICES: CANADA - 905-712-8336 USA - 706-554-9390**

LIMITED WARRANTY

GAS-FIRED INFRA-RED LUMINOUS SERIES: ECOSCHWANK

The Manufacturer warrants that this product is free from defects in material or workmanship under normal use and service subject to the terms of this document.

TWO YEAR WARRANTY

Subject to the conditions and limitations stated herein, during the term of this limited warranty, we will repair or replace (at our option) any component part of the heater as defined below, which the Manufacturer's examination determines to be defective in workmanship or material for a period of two years (2 years) from the date of installation, unless otherwise specified below. This warranty applies to the heater's original owner, and subsequent transferees and only if the unit is installed and operated in accordance with the printed instructions accompanying the unit and in compliance with all applicable installation, building codes and good trade practices. Warranty is only applicable to Schwank components, other parts are limited to their own Manufacturers warranty. (1 year)

TEN YEAR WARRANTY

The Manufacturer warrants the Ceramic Tiles for a period of ten years (10 years)

WHAT IS NOT COVERED

This warranty does not cover heating products improperly installed, misused, exposed to or damaged by negligence, accident, corrosive or contaminating atmosphere, water, excessive thermal shock, impact, abrasion, alteration or operation contrary to the owner's manual or if the serial number has been altered, defaced or removed. This warranty shall not apply if the input to the heating product exceeds by more than 2% of the rated input on the rating plate. The Manufacturer shall not be responsible for any expenses, including service, labor, diagnosis, analysis, material or transportation charges incurred during removal or reinstallation of this product, or any of its components or parts. All labor or service charges shall be paid by the owner. The Manufacturer shall not be liable for any default or delay in performance by its warranty caused by any contingency beyond its control, including war, government restrictions, or restraints, strikes, fire, flood, acts of God, or short or reduced supply of raw materials or products.

WARRANTY PROCEDURE

To establish the installation date for any purpose under this Limited Warranty, you must retain the original records that can establish the installation date of your unit. If you do not provide such documents, the start date of the term of this Limited Warranty will be based upon the date of unit manufacture, plus thirty (30) days. Failure to maintain the equipment through regular annual service maintenance by a qualified service technician shall void the warranty.

LIMITATIONS AND EXCLUSIONS

This document contains all warranties made by the Manufacturer and may not be varied, altered or extended by any person. There are no promises, or agreements extending from the Manufacture other than the statements contained herein. THIS WARRANTY IS IN LIEU OF ALL WARRANTIES EXPRESSED OR IMPLIED, TO THE EXTENT AUTHORIZED BY THE LAWS OF THE JURISDICTION, INCLUDING SPECIFICALLY THE WARRANTIES OR MERCHANTIBILITY OF FITNESS FOR A PARTICULAR PURPOSE.

It is understood and agreed that the Manufacturer's obligation hereunder is limited to repairing or replacing parts determined to be defective as stated above. In no event shall the Manufacturer be responsible for any alleged personal injuries or other special, incidental or consequential damages. As to property damages, contract, tort or other claim the Manufacturer's responsibility shall not exceed the purchase priced paid for the product.

All replacement parts will be warranted for the unused portion of the warranty coverage period remaining on the applicable unit.

Some Authorities do not allow certain warranty exclusions or limitations on how long a warranty lasts or the exclusions or limitations of incidental or consequential damages. In such cases, the above limitations or exclusions may not apply to you and are not intended to do so where prohibited by law. This warranty gives you specific legal rights. You may also have other rights which vary by each jurisdiction.

SCHWANK INC. 5285 BRADCO BLVD. MISSISSAUGA, ON, L4W 2A6 Ph: 905-7121-4766

SP-DECQ-BX-02A
ECO WARRANTY
May 2004
RL: 2
KH